

# Notice of Allowability

Application No.

10/670,409

Examiner

Hector M Reyes

Applicant(s)

HEROLD ET AL.

Art Unit

1625

## -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 2/11/04.
2. ☒ The allowed claim(s) is/are 1-11.
3. ☒ The drawings filed on 25 September 2003 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☒ All    b) ☐ Some\*    c) ☒ None    of the:
  1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  6. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached  
1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of  
Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

### Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08),  
Paper No./Mail Date 9/25/03, 2/11/04
4. ☐ Examiner's Comment Regarding Requirement for Deposit  
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),  
Paper No./Mail Date \_\_\_\_\_.
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_.

## DETAILED ACTION

### Status of the Claims

Currently claims 1-11 are under Examination.

### Allowance

The following is an examiner's statement of reasons for allowance: In claims 1-11 Applicants claim a process for quenching a reaction mixture during the phosgenation of diamines in the gas phase to produce diisocyanates, in which the said mixture contains at least diisocyanate, phosgene and hydrogen chloride wherein the improvement comprises:

- Injecting a quenching liquid into the gas mixture continuously flowing out of a cylindrical reaction zone into the downstream cylindrical quenching zone,
- With at least two spray nozzles arranged at the entrance to the quenching zone and
- Each spray nozzle is located at equal distances along the circumferences of the quenching zone.

No prior art disclosing or suggesting the instant invention was found. The closest art was found in:

- Frosch et al, 4847408 and
- Biskup et al, US patent 5449818.

Frosch discloses the phosgenation of diamines in the gas phase to produce diisocyanates, in which the reaction mixture contains at least diisocyanate, phosgene and hydrogen chloride.

Similarly, Biskup discloses the gas phase phosgenation of aromatic diamines to produce diisocyanates, in which the reaction mixture contains diisocyanate, phosgene and hydrogen chloride. In both references, once the diisocyanate is formed, the reaction mixture is work up by

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**selective condensation**: dissolving the reaction mixture in a solvent wherein the diisocyanate is highly soluble. The cited references do not disclosed or suggest the instant method of quenching the reaction mixture as described in the instant claims and figures 1-2.

### **CONCLUSION**

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee.

Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

All post-Allowance Correspondence concerning this Application must be mailed to:

**BOX ISSUE FEE  
COMMISSIONER FOR PATENTS  
WASHINGTON, DC 20231**

Or you can fax them to the Office of Patent Publications at 703-308-5083, in order to expedite the handling of such correspondence as amendments under 37 CFR 1.312; information disclosure statements, and formal drawings. Sending Post-Allowance papers to Technology Center 1600 will only cause delays in matching papers with the case.

For information concerning status of correspondence sent after receipt of the Notice of Allowance, please contact the Correspondence Branch at (703) 305-8027.

Héctor M. Reyes, PhD JD  
Reg. # P-54846  
AU 1625  
June 21, 2004

*R. Desai*  
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6/21/04